

## Characterization of Three Iranian Kaolins for Transformation to Y Zeolite

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**Abstract :** The extensive use of zeolites as catalysts and catalyst supports in heterogeneous catalysis in the chemical and petrochemical industries is well established. Kaolin is a suitable aluminosilicate mineral which in appropriate conditions can be transformed to a three dimensional zeolite structure with a high surface area. A vast and dispersed kaolin deposits in the country are high potential sources for studying synthesis of zeolites. The kaolins investigated in this study were from Zenoos-Azarbayjan , Rokh-Sefeed-Khorasan and Samirom-Esfahan. They were activated by calcination at 750°C to convert them to metakaolin. Synthesis gel was prepared from metakaolin, sodium hydroxide, sodium silicate and sodium chloride. Synthesis was performed by hydrothermal method at 100°C. The products were examined by XRD and EDX/SEM for structural and chemical analysis. All three types kaolins were converted to zeolite Y in specific condition. Silicon to aluminum ratio in the prepared zeolite framework was in the range of 1.7-2.15 where the highest value belongs to the zeolite prepared from Samirom kaolin.